

THE PROGRAMMINGCOMPETITION.ORG

>**Programming**Competition.org

Official 2015-2016 Competition Bylaws

1. Languages
 - a. Java
 - i. Eclipse
 - b. C
 - i. Eclipse
 - c. C++
 - i. Eclipse
 - d. Requests for different languages or different IDEs must be submitted to the administrators of the competition at least 3 weeks prior to the competition date.
2. Teams
 - a. Teams may consist of two members.
 - i. Members must be currently enrolled in high school.
 - ii. Teams may be created across schools.
 - iii. Competitors may come from any public, private high school or homeschool.
 - b. In the event of a lack of devices or seats available for competition, one member teams will be combined.
 - c. Teams and members must be registered online with valid email addresses.
 - d. Teams must be registered within the registration period in order to be guaranteed competition amenities (Ex: T-shirts, Lunch).
3. Devices
 - a. All competitors must compete on standardized equipment
 - i. BYOD equipment is not allowed.
 - ii. Competitors are not allowed to access their devices while the competition is in progress.
 - b. Internet access must be limited on each device
 - i. A list of web sites that must be accessible will be provided to all member competitions prior to the competition date.
 - ii. Internet access may be proxied at any level, as long as it is infeasible for a competitor to bypass the proxy without being noticed by a proctor.
 - c. Cell Phone use is considered a breach of competition integrity, and the team found using their phones will be warned on the first offense and asked to leave on the second offense.
 - d. Proctors must monitor competitors computers at all times to ensure integrity.
 - e. Competitors caught attempting to circumvent security measures will be asked to leave the competition, and the team's solutions will be thrown out.
4. Problems
 - a. Create problems for each round of competition
 - i. Warmup Round

1. Easy, short problems to help diagnose computer problems and ensure competitors are able to submit work to the website.
 2. Not scored.
 3. Proctors and competition administrators are able to give any assistance necessary to competitors.
- ii. Main Problem Round
 1. Long problems created to challenge competitors. Written to enhance skills taught in AP Computer Science A.
 2. Problems will be solvable in any of the provided languages.
 3. Main Scoring Round, these problems have the most weight on the final results.
 - iii. Real World Problem Round
 1. Two long problems meant to take the entire round to solve. Based on real world issues programmers in the community face.
 2. Scored round; however, these problems will not have as much weight on total scoring.
- b. Ensuring problem correctness
- i. Problems will be produced with only human produced inputs.
 - ii. Problem Inputs and Outputs
 1. Each problem may have up to 5 sample inputs and outputs. These are shown to the competitors. If there are any “trick cases¹,” these may not be included in the sample inputs.
 2. Each problem may have up to 25 **human generated** official inputs with matching outputs. These are the inputs which will be used to test problems for correctness on the day of the competition.
 3. Official and sample inputs and outputs must be vetted using the same process as the questions as a whole.
 - iii. Problems must be submitted to the website, and printed on official review forms.
 - iv. Each problem must be read by **at least 5 independent reviewers**, who will not be competing in the competition, in order to ensure there are no typos or mistakes.
 - v. Each problem must be solved completely and correctly, without any assistance, by **at least 3 independent reviewers**.
 - vi. After all of the above conditions are met, a problem will be approved for use in the competition.
 - vii. **All problems must be completed and reviewed at least one month prior to the date of the competition.**

¹ Problem inputs which produce an unexpected output if the solution is improperly coded.

- c. **All problems presented in the competition are considered final.** The problem inputs and outputs are considered correct on the day of the competition.

5. Scoring

- a. Problems are automatically graded by the ProgrammingCompetition.org Online Judge.
- b. After problems are scored automatically, the judges will review the code, and the produced output by hand. If an error is found,
 - i. The judges reserve the right to change the decision made by the ProgrammingCompetition.org Online Judge.
 - ii. The competitors will not be expressly notified of changes made by the judges to their individual submissions, and must watch the submissions page for a change in the submitted problem's status.
 - iii. Judges can adjust problem answers and rescore all submissions to a problem if issues are found. Competitors will be notified of a rescore.
- c. When answers are compared, all whitespace is removed in the correct problem output and the competitor's solution output. Problem inputs will follow the same whitespace guidelines as the sample inputs.
- d. A golf scoring method is used to score problems. The team that has the lowest score at the end of the competition will be the winner, followed by the next lowest team, and so on.
- e. The scoreboard updates live as submitted problems are scored every minute.
- f. Points are awarded in order to promote correctness and speed while heavily penalizing teams for not solving easy problems and only lightly penalizing teams for not solving the hardest problems.
 - i. Each problem has a base value of 10 points.
 - ii. The first team that solves this problem will receive 1 point for the problem.
 - 1. Consecutive teams who solve the problem correctly will receive $1+n$ points for the problem, where n is the number of teams who have solved the problem before this team.
 - iii. In the event that a team does not solve a problem, they will receive the base value of the problem plus the amount of teams that have successfully solved the problem. $(10 + n)$
 - iv. The winning team will have the least points, and the losing team will have the most points.

6. Proctoring

- a. There must be at least one proctor in each room of the competition.
- b. At least one proctor must be a teacher or other adult.
- c. Proctors will stand behind the computers, and look for teams attempting to circumvent security measures
 - i. Accessing websites which are not permitted to be used during the competition.

- ii. Using cell phones or other electronic devices which have access to the internet.
 - d. Proctors may request a team be expelled from the competition if caught attempting to circumvent security measures in order to gain an unfair advantage.
- 7. Question Disputes
 - a. Competition administrators will not be permitted to have direct contact with competitors during the problem solving rounds of the competition outside of the ProgrammingCompetition.org Online Judge Forum System.
 - b. All question disputes will be handled in the forum section of the ProgrammingCompetition.org Online Judge.
 - i. In the event of a failure of the forum system, disputes will not be handled, for the fairness of all competitors.
 - c. All disputes are viewable by all competitors.
 - d. Disputes that contain inappropriate content will be immediately deleted, and may result in the removal of the submitting team from the competition.
 - e. Administrators may refuse to answer any dispute for any reason.
 - i. No dispute which asks for information about official problem inputs or outputs will be answered. Competitors must utilize the sample inputs and outputs.
 - ii. No competitors may post disputes that contain code fragments. These will be immediately deleted in order to prevent cheating.
 - iii. No questions will be answered about specific programming languages or syntax errors in code.
 - iv. Judges will not provide insight into submitted code. Competitors must assume the ProgrammingCompetition.org Online Judge produces accurate scoring decisions.
 - v. Judges will not provide additional information on compilation or runtime errors in a problem.
- 8. Competition Volunteer Structure
 - a. Each competition is made possible by a strong and well organized volunteer force. This group must meet volunteer requirements and will be given certified volunteer hours for their assistance.
 - b. Volunteers will be managed by a volunteer manager, who is in charge of assigning jobs to the volunteers.
 - c. Competition administration is defined as anyone who will be **directly involved in the creation of problems or the scoring of problems on the day of the competition.**
 - d. High School aged volunteers may be used for all jobs, but must be supplemented with adult volunteers to assist with proctoring the competition to maintain integrity.
 - e. Competition administration volunteers should not be responsible for handing out registration packets. Competition administration **may not be**

responsible for proctoring. Non administrative volunteers must proctor the competition.

9. Accessing the Competition Website

- a. Teams will be given sheets of paper that have their website login and password.
- b. Teams will be guided through the website prior to the start of the competition.
- c. Any website questions will be answered by the competition judges.
- d. If the ProgrammingCompetition.org Online Judge crashes unexpectedly any time before or during the competition, progress will be halted while the problem is fixed. If the problem can not be remedied, the competition will be cancelled.